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Florida Water Management Districts and the Florida Water Resources Act: The Challenges of Basin-Level Management

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FLORIDA WATER MANAGEMENT DISTRICTS AND THE FLORIDA WATER RESOURCES ACT: THE CHALLENGES OF BASIN-LEVEL MANAGEMENT

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ABSTRACT

Florida's plentiful freshwater resources are indispensable to the state's municipal, agricultural, and environmental interests. As such, decision makers presiding over complex water management decisions wield extraordinary powers. The Water Resources Act of Florida vests these powers in five water management districts drawn according to hydrological, not political, boundaries. The water management districts have robust technical, financial, and regulatory powers, and hold the key to Florida's sustainable development. With the stakes so high, Florida's water management districts are at the center of a broad fight for control of water resources. In particular, transboundary water conflicts, political pressure, and ecological needs show that while the water management districts are institutionally mature, external forces can exert significant influence on basin-level water management.

I. INTRODUCTION

Florida has more than 1,700 streams and rivers, 7,800 freshwater lakes, 700 springs, eleven million acres of wetlands,[1] and five major aquifer systems.[2] These sources supply freshwater to a dynamic agricultural sector, burgeoning population, and a unique natural environment. The most recent data from the US Geological Survey shows freshwater withdrawals in

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[1] RICHARD L. MARELLA, U.S. DEP'T. OF THE INTERIOR, WATER, WITHDRAWALS, USE, AND TRENDS IN FLORIDA, 2 (2010).

[2] *Aquifers*, FLA. DEP'T ENVTL. PROT. (Jan. 3, 2007), http://www.dep.state.fl.us/swapp/aquifer.asp.

Florida total approximately 6.9 billion gallons per day.[3] Forty percent of this water is used for agricultural irrigation, thirty-seven percent is used for public water supply, and the remainder is distributed among other industries, including power generation, commercial and industrial development, and recreational irrigation (e.g., watering lawns and golf courses).[4] This, however, does not account for the freshwater supply necessary to sustain an ecosystem like the Everglades. A broad range of individuals, industries, and environmental processes make Florida's vast water resources a highly demanded commodity.

To manage these demands, Florida relies on a water governance structure that may be the most complex in the United States. Institutional responsibility for water management is shared among local governments, regional water management districts, state agencies (e.g., Florida Department of Environmental Protection), and federal agencies and sub-agencies, including the Environmental Protection Agency and the Departments of the Interior (e.g., Fish and Wildlife Service,, National Park Service), Agriculture (e.g., Forest Service), Commerce (e.g., National Oceanic and Atmospheric Administration), and Defense (e.g., Army Corps of Engineers). Co-existing with these institutions is a comprehensive landscape of environmental laws and regulations, such as the federal Clean Water Act[5] and the Florida Water Resources Act.[6]

Florida's water management framework is not entirely unique in its ability to invoke a variety of institutions and statutes.[7] What is remarkable, however, is that Florida water law grants extensive powers to five basin-level institutions. These institutions operate in line with principles of Integrated Water Resources Management (IWRM), a water management approach that has not been wholeheartedly adopted in the United States.[8]

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[3] MARELLA, *supra* note 2, at 40.

[4] *Id.*

[5] *See* Federal Water Pollution Control Act, 33 U.S.C. §§ 1251-387 (1972).

[6] *See* Florida Water Resources Act, FLA. STAT. §§ 373.076-200 (1972).

[7] *See, e.g.,* legal regimes for coastal development, air quality, or oil and gas development.

[8] Water quantity and quality laws in the United States are not carried out in an integrated or coordinated manner. Traditionally, surface water allocation rights in the United States have been derived from two doctrines: riparianism, in which riparian landowners may use water as long as that use is reasonable, and prior appropriation, in which water rights are determined by the date on which water

Florida's water management districts have broad statutory authority that provides them with relative autonomy from both local and state control. The districts also have technical staff with expertise in a wide range of disciplines and the most plentiful financial resources of any state or regional agency managing water in Florida.[9] The districts can build structures for drainage or water supply, buy land, conduct studies and develop management plans, control pollution, and, perhaps most importantly, issue the permits required to use water.[10] Water management districts provide an insightful case study of what basin-level water management can look like when a state couples decentralization with meaningful regulatory and financial power. This article examines Florida water law and water management to identify lessons for the IWRM approach to water management. Specifically, this article focuses on the limitations of basin-level institutions.

First, while water management districts have had success in carrying out an integrated approach to decision making in their jurisdictions, an effective mechanism for resolving transboundary water conflicts is lacking. Second, the high stakes involved for water users, including a rapidly growing population and vital industries like agriculture and tourism, allow politics to creep into the water management regime. Finally, while the water management districts have performed admirably in addressing human concerns, the needs of the environment and ecosystems have not been met. Overall, the water management districts may be a prime example of basin-level management in action, but that approach alone is not sufficient to ensure the sustainability of Florida's water resources management, and in the end, many challenges remain.

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was first appropriated for a particular use. Groundwater rights are derived from separate water allocation doctrines. Federal statutes, meanwhile, regulate water quality, which are integrated at the state level.

[9] Richard Hamann, *Florida's Water Management Framework, in* ADAPTIVE GOVERNANCE AND WATER CONFLICT: NEW INSTS. FOR COLLABORATIVE PLANNING 16 (John Scholz & Bruce Stiftel eds., 2005).

[10] *Id.* at 17-18.

II. THE PATH TOWARDS BASIN-LEVEL MANAGEMENT

The Florida Water Resources Act of 1972 created Florida's water management districts. The path to basin-level management, however, was a long time in the making. With the ratification of the Bill of Rights in 1791, the Tenth Amendment reserved to the states powers not granted to the federal government.[11] Absent federal legislation, one power traditionally left to states is water resources management. For much of United States history, common law has governed water management, meaning state courts have developed the rules for allocating water and ensuring its quality. Accordingly, water law was reactive and fragmented (three distinct legal doctrines developed to govern surface water allocation, water quality, and groundwater extraction).

States developed two primary doctrines of surface water allocation, both of which are significantly preserved in contemporary water law. Traditionally, states bordering and east of the Mississippi River enforced the doctrine of riparianism, which loosely allocates water based on a broad reasonableness standard.[12] By contrast, most states west of the Mississippi River implemented the doctrine of prior appropriation, which allocates water to whomever makes first use of the resource and continues to put the water to a beneficial off-stream use.[13] These two doctrines comprise traditional common law water allocation.

Common law nuisance claims were another avenue to address water quality. If pollution harmed private property, a landowner could bring a claim of private nuisance. Similarly, government officials could bring a public nuisance claim for pollution adverse to public lands. In both cases, courts would balance harm to the property against the economic and social

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[11] U.S. CONST. amend. X.

[12] For an introduction to the doctrine of riparianism in the United States, *see generally* BARTON H. THOMPSON, JR., JOHN D. LESHY & ROBERT H. ABRAMS, LEGAL CONTROL OF WATER RESOURCES: CASES AND MATERIALS 28-166 (5th ed. 2013).

[13] For an introduction to the doctrine of prior appropriation in the United States, *see generally* Thompson, *supra* note 13, at 167-387.

value of the activity responsible for the pollution by using a reasonableness standard.[14]

Finally, states developed legal doctrines to manage groundwater as a distinct hydrological entity. In general, these doctrines were variations of one of three paradigms: 1) the rule of capture, in which anyone may extract as much groundwater as needed without limit; 2) the reasonable use approach, in which overlying landowners may use groundwater as long as that use is reasonable and/or equitable; and 3) the rule of prior appropriation, in which groundwater rights attach on a first in time, first in right basis and endure by making continuous beneficial use of the water.[15]

The common law approach to water management was problematic for many reasons. From a hydrological perspective, it makes little sense to create distinct legal frameworks for processes that are inter-connected. In many cases, surface water and ground water are practically indistinct in that significant withdrawals from one source will reduce the availability of water in both sources. Similarly, water quantity and water quality are not independent considerations. A reduction in flows increases the impact of a pollutant on the remaining water resources, while the pollution of a waterway reduces the amount of clean water available. From a regulatory perspective, common law does not provide states with a coordinated or proactive management framework. Instead, decisions are made only when water conflicts become so severe that they make their way to the courts. This process is often costly and time consuming. The common law approach to water management may have been appropriate when the United States was in its infancy, but it became increasingly evident that these approaches were unsustainable.[16]

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[14] *Id.* at 1138-39.

[15] For an introduction to groundwater doctrines in the United States, *see generally* Thompson, *supra* note 13, at 444-587.

[16] John Leshy, *Notes on a Progressive National Water Policy*, 3 HARV. L. & POL'Y REV. 133, 138-40 (2009) (discussing how Americans today use twice as much water per capita as the inhabitants of any other country in the world, with an approximate total consumption of 400 billion gallons of water per day).

In the mid-1960s, attitudes toward the environment began to change. Reports of anthropogenic environmental destruction caused great concern.[17] Accordingly, many landmark environmental statutes were passed at the federal level, including the Clean Air Act, National Environmental Policy Act, Endangered Species Act, and Resource Conservation and Recovery Act. Congress also passed the Clean Water Act, which laid the foundation for a national framework of water pollution regulation with significant powers reserved for the states.[18] In its wake, many states subsequently implemented further legislation, including the creation of permit systems with state and local institutions to actively manage water resources. Most states now employ schemes that regulate traditional water allocation mechanisms. These regulatory schemes allow for hybrid systems, which incorporate elements of both riparianism and prior appropriation, regulate surface water and groundwater simultaneously, or apply complex proactive permitting requirements to the common law.

Following the Clean Water Act, Florida modified its traditional reliance on riparian doctrine to incorporate decentralized and integrated water resources management approaches. Geographically and geologically, water prominently shapes the state. Florida is surrounded on three sides by the Atlantic Ocean, the Caribbean Sea, and the Gulf of Mexico. The state's land mass is made up of porous limestone rock that enables easy formation of sinkholes, springs, rivers, and lakes. Low elevation levels ensure that groundwater, surface water, and coastal processes are hydrologically interwoven. As a consequence, early attempts at water resources management were primarily concerned with controlling floods and drainage. Florida drained its wetlands to create arable land, cut canals to prevent urban flooding, and discharged pollutants into waterways with little regard for ecological effects on humans and the environment. The Army Corps of Engineers implemented many of the early public works projects

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[17] *See generally* RACHEL CARSON, SILENT SPRING (1962). *Silent Spring* may have been a turning point in environmentalism, as it explored the effects that insecticides like DDT had on environmental processes (in this instance, widespread extermination of insect-dependent bird populations).

[18] *See* Federal Water Pollution Control Act, 33 U.S.C. §§ 1251-387 (1972).

with the aim of converting pristine wetlands and waterways into productive inputs for economic development.[19]

As environmental awareness spread during the 1960s, the Florida Legislature passed four major pieces of legislation: the Environmental Land and Water Management Act, the Comprehensive Planning Act, the Land Conservation Act, and the Water Resources Act.[20] The Water Resources Act was particularly important because it recognized that water resources were involved in nearly every vital human and environmental process, and water resources management, therefore, required planning around the needs of urban development, agriculture, and the environment.

The Water Resources Act established five water management districts drawn according to hydrological (not political) boundaries.[21] Chapter 373 of the Florida Statutes enumerated Florida's integrated and decentralized water law framework based on these five districts. The management districts were granted broad powers, overseeing water quality, water allocation, flood control, and ecosystems.[22] In addition, the districts were charged with issuing permits to potential water users–a derivation from Florida's traditional riparian doctrine.

To obtain a permit, an applicant must demonstrate that his or her water use will be reasonable and beneficial (incorporating elements of the doctrine of prior appropriation), will not interfere with an existing use, and will be in the public interest.[23] The management districts must also maintain minimum flow requirements to ensure that surface and groundwater levels do not drop below minimum requirements for ecological integrity.[24] To further consolidate basin-level management, Florida water law required that water management districts support and assist counties, municipalities, and local governments in their water resources management efforts.[25]

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[19] ELIZABETH D. PURDUM, FLORIDA WATERS: A WATER RESOURCES MANUAL FROM FLORIDA'S WATER MANAGEMENT DISTRICTS 7-9 (2002).

[20] *Id.* at 10.

[21] Florida Water Resources Act, FLA. STAT. §§ 373.076-200 (1972).

[22] FLA. STAT. § 373.701 (2013).

[23] FLA. STAT. § 373.223 (2013).

[24] FLA. STAT. § 373.0421 (2010).

[25] FLA. STAT. § 373.703 (2013).

These complex administrative tasks require high-level technical and scientific proficiency to be carried out effectively. Fortunately, the districts are endowed with a robust and diversified funding portfolio from which to operate. This funding includes a combination of *ad valorem* property taxes, federal and state revenues, licenses, permit fees, grants, agricultural taxes, fund balances, and investment income.[26] The South Florida Water Management District, for example, has a 2014 fiscal year budget of 622.12 million dollars.[27] While much of the districts' funding is channeled to large public works, their considerable financial resources and permitting authority create extensive human resource development and political capital.

Although the Florida Water Management Districts are well funded, operational, and technically proficient, the sustainability of water management strategies remains a challenge. First, transboundary water conflicts that implicate two or more jurisdictions require coordinated action, which is lacking. Second, the importance of water resources causes politicized management. Finally, the intense demand for water resources too often leaves fragile ecosystems without the water needed to survive.

III. TRANSBOUNDARY CHALLENGES

Transboundary waters are notoriously difficult to manage. Water conflicts on the international level receive the most attention because the scale is larger and international water law is undeveloped.[28] Transboundary issues, however, are also common in domestic settings. Recent Supreme Court cases have addressed transboundary water conflicts between North Carolina and South Carolina,[29] Texas and Oklahoma,[30] and Virginia and

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[26] FLA. STAT. §§ 373.701-715 (2013).

[27] S. FLA. WATER MGMT. DIST., BUDGET IN BRIEF FY2013-14 1 (2014), *available at* http://my.sfwmd.gov/portal/page/portal/xrepository/sfwmd_repository_pdf/2014_budget_brief.pdf.

[28] Ryan B. Stoa, *International Water Law Principles and Frameworks: Perspectives from the Nile River Basin*, *in* NILE RIVER BASIN: ECOHYDROLOGICAL CHALLENGES, CLIMATE CHANGE AND HYDROPOLITICS 581-95 (Assefa M. Melesse, Wossenu Abtew & Shimelis G. Setegn eds., 2014).

[29] South Carolina v. North Carolina, 558 U.S. 256 (2010).

[30] Tarrant Reg'l Water Dist. v. Herrmann, 133 S. Ct. 2120 (2013).

Maryland.[31] One such dispute highlighted the limits of Florida's water management districts in the interstate context.

Georgia, Alabama, and Florida share the Apalachicola-Chattahoochee-Flint (ACF) River Basin. Millions of consumers depend on the ACF basin for their water supply. The population growth of Atlanta's metropolitan area from approximately three million in 1990[32] to nearly 5.5 million in 2013[33] has forced Georgia to modify flows in the ACF River Basin to ensure an adequate water supply. These modifications can cause a severe downstream impact, as Alabama relies on the ACF for hydropower and Florida's oyster industry in Apalachicola Bay (which represents ten percent of the national oyster market) depends on regular freshwater flows from the ACF.[34] The Northwest Florida Water Management District, however, has been largely unable to influence negotiations or protect the oyster industry. In 2006, the district largely prohibited withdrawals of the Apalachicola River in order to maintain ecological conditions in the bay,[35] but the impact of water management regulations applied to the mouth of a river basin are dwarfed in comparison to the withdrawals taking place upstream. While the district has contributed to Florida state governmental efforts to secure minimum flows, the battle for the ACF has largely taken place at the state or federal level.[36]

Water management districts also face intrastate challenges. The reality of Florida water dynamics is that while most of Florida's population is in the south, its water resources are concentrated in the north. For some time,

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[31] Virginia v. Maryland, 540 U.S. 56 (2003).

[32] CITY DATA, ATLANTA: POPULATION PROFILE, http://www.city-data.com/us-cities/The-South/Atlanta-Population-Profile.html (last visited Aug. 30, 2014).

[33] Jacques Couret, *Metro Atlanta No. 9 in population*, ATLANTA BUS. CHRON., Jan. 3, 2013, *available at* http://www.bizjournals.com/atlanta/news/2013/01/03/metro-atlanta-no-9-in-population.html.

[34] Lee Gordon, *Florida's Once Bustling Oyster Industry is Drying Up*, 850 BUSINESS MAGAZINE, http://www.850businessmagazine.com/December-January-2012/Floridas-once-bustling-oyster-industry-is-drying-up/ (last visited June 6, 2014).

[35] *See* NICOLE T. CARTER, ET AL., CONGRESSIONAL RESEARCH SERVICE, RL34326, CRS REPORT FOR CONGRESS: APALACHICOLA-CHATTAHOOCHEE-FLINT (ACF) DROUGHT: FEDERAL WATER MANAGEMENT ISSUES (2008), *available at* http://www.dep.state.fl.us/mainpage/acf/files/crs_report_congress030508.pdf.

[36] *See* Lewis Jones, et al.,, *Updating Twentieth Century Water Projects to Meet Twenty-First Century Needs: Lessons from the Tri-State Water Wars*, 29 GA. ST. U. L. REV. 959 (2013).

interest groups have lobbied the state government to relax water transfer laws in order to make it easier for water management districts to allocate water resources where they are most needed.[37] Those groups are concerned with a collection of state laws known as "Local Sources First" that place restrictions on the water management districts' water transfer powers.[38] If a water management district seeks to approve a water transfer permit across county lines, certain factors must be considered, including examining feasible alternatives (e.g., desalinization, conservation, and reuse), environmental impacts, and the positions of local governments.[39] When proposals were made to create a state commission capable of surveying Florida's water needs and authorizing water transfers, the public uproar in northern Florida was so intense that the state swiftly dropped the idea.[40] As a result, the water management districts continue to face restrictions on their ability to transfer water from one county to another, or across the districts themselves.

Finally, water management districts face transboundary problems located entirely within their jurisdictions. The Southwest Florida Water Management District (SWFWMD), for example, encompasses sixteen counties and 4.7 million people, including the Tampa Bay metropolitan area.[41] Disputes between counties in the 1970s resulted in a protracted conflict that remains active today. For many years, densely populated Pinellas County bought land in nearby Pasco and Hillsborough Counties to drill wells and transfer drinking water to Pinellas County. The wells lowered the area's water table, which damaged lakes, wetlands, and homes in Pasco and Hillsborough Counties.[42] As the institution regulating water resources in all three counties, the SWFWMD was in a unique position to

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[37] *See, e.g.*, Craig Pittman, *Plan for a Florida Water Czar Resurfaces at Conference*, TAMPA BAY TIMES (Sept. 23, 2008, 9:01 PM), http://www.tampabay.com/news/environment/water/plan-for-a-florida-water-czar-resurfaces-at-conference/824694.

[38] FLA. STAT. §§ 373.016(4)(a)-(b), 373.223(3)(a)-(g) (1972).

[39] FLA. STAT. § 373.223(3) (2010).

[40] Pittman, *supra* note 38.

[41] *Our Mission & What We Do*, SW. FLA. WATER MGMT. DIST., http://www.swfwmd.state.fl.us/about/mission/ (last visited June 6, 2014).

[42] Aysin Dedekorkut, *Tampa Bay Water Wars*, *in* ADAPTIVE GOVERNANCE AND WATER CONFLICT: NEW INSTS. FOR COLLABORATIVE PLANNING, 52 (John Scholz & Bruce Stiftel eds., 2005).

resolve the conflict. When it attempted to force the counties to cooperate, however, extensive legal challenges forced the parties involved to spend over ten million dollars in legal fees between 1994 and 1998 to resist SWFWMD orders.[43] Eventually, a new institution called Tampa Bay Water filled the regulatory deficit. One of its mandates was to resolve the Tampa Bay water dispute by developing an alternative water source from desalinated saltwater, a source that the SWFWMD is not legally authorized to develop.[44] While the water management districts play an instrumental role in balancing the interests of local governments, in Tampa Bay the SWFWMD was exposed for its inability to resolve the conflict.

IV. POLITICAL CHALLENGES

While water management districts are constrained by transboundary and jurisdictional considerations, they are also subject to political influences. The Florida Department of Environmental Protection, an executive office of the state, supervises water management districts. The Water Resources Act grants the Governor of Florida approval power over the budget and expenditures of the districts,[45] and current Governor Rick Scott made it clear when assuming office that he would take an active role in the water management districts.[46] The propensity of political parties to favor one of Florida's three primary water users (agriculture, urban development, and the environment) over the others may lead to inconsistent long-term water resources management and strategic planning, or the appointment of senior decision makers based on political–and not meritocratic–considerations.

How this can play out is evident when analyzing the water management districts' statutory authority. For example, the legal standard established to issue appropriate water use permits looks at reasonableness,

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[43] *Id.*

[44] Water Supply: Developing Sustainable Water Supplies to Meet Current and Future Demands, SW. FLA. WATER MGMT. DIST., http://www.swfwmd.state.fl.us/publications/files/watersupply.pdf (last visited Sept. 14, 2014).

[45] FLA. STAT. § 373.026(8)(d) (2012).

[46] Letter from Rick Scott, Governor, Florida, to the Herschel Vinyard, Secretary, Dept. of Envtl. Prot. (Apr. 12, 2011) *available at*, http://www.dep.state.fl.us/secretary/watman/files/001_govs_direction_041411.pdf.

benefits, significant harms, and public interest–all relatively amorphous concepts. Accordingly, the districts have significant flexibility to issue permits that may deviate from strict interpretations of the standards.

In addition, when the stakes of water politics are elevated, water management districts are more likely to be marginalized by political actors, like state and federal governments. A prime example of basin-level management politicization is the complicated history of the Florida Everglades. While an exhaustive review is outside the scope of this article,[47] a cursory glance at contemporary developments reveals the scrutiny applied to Everglades management. In their natural state, the Everglades covered a large portion of South Florida.[48] Today, almost fifty percent of the Everglades have been turned into either farmland or urban development.[49] While early developments focused on drainage and flood control, environmental awareness prompted local, state, and federal governments to intervene and create jurisdictions and institutions with overlapping mandates and unclear relationships. The 2000 Comprehensive Everglades Restoration Plan set aside almost twelve billion dollars for the South Florida Water Management District (SFWMD) and the US Army Corps of Engineers to coordinate over sixty construction projects to restore the Everglades.[50] In reality, however, federal funds trickled in slowly[51] and funding for the plan remains an object of political gamesmanship.[52] Since federal law trumps state law under the Supremacy Clause of the Constitution,[53] the SFWMD must adhere to the ongoing presence of federal agencies and their regulations. Without a reliable vision or political

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[47] For a complete overview of the Everglades, *see generally* MICHAEL GRUNWALD, THE SWAMP: THE EVERGLADES, FLORIDA, AND THE POLITICS OF PARADISE (2007).

[48] *See Brief History of the Everglades*, FLA. DEP'T. OF ENVTL. PROT. PROTECTION, http://www.dep.state.fl.us/evergladesforever/about/ (last modified Feb. 11, 2009).

[49] S.E. Ingebritsen, et al., *Fla. Everglades*, LAND SUBSIDENCE IN THE UNITED STATES 106 (1999), *available at* http://pubs.usgs.gov/circ/circ1182/pdf/12Everglades.pdf (last visited Oct. 3, 2014).

[50] *About CERP: Brief Overview*, COMPREHENSIVE EVERGLADES RESTORATION PLAN, (CERP), http://www.evergladesplan.org/about/about_cerp_brief.aspx (last visited June 6, 2014).

[51] Abby Goodnough, *Effort to Save Everglades Falters as Funds Drop*, N.Y. TIMES (Nov. 2, 2007), http://www.nytimes.com/2007/11/02/us/02everglades.html?pagewanted=all&_r=0.

[52] *See, e.g.*, *Florida Politics: Everglades*, SUN SENTINEL BLOGS, http://weblogs.sun-sentinel.com/news/politics/dcblog/everglades/ (last visited June 6, 2014) (linking to a list of blog posts about Florida politics affecting Everglades restoration.).

[53] U.S. CONST. art. VI, cl. 2.

commitment from the federal government, however, the SFWMD will be forced to adjust to the whims of the political process.

V. ECOLOGICAL CHALLENGES

Finally, because the demands of agriculture and urban development are so great, the water management districts face an uphill battle to protect Florida's ecosystems. As the above case studies from Apalachicola Bay, Tampa Bay, and the Everglades demonstrate, the demands of urban areas and economic development almost always trump conservation, and water management districts have not shown themselves capable of resolving complex, large-scale, multi-jurisdictional disputes. In Apalachicola Bay, reduced freshwater flows led to a deterioration of the estuary and oyster fishery.[54] Groundwater withdrawals in Tampa Bay led to terrestrial subsidence of habitats.[55] And water levels in the Everglades are managed according to the needs of the agricultural areas to the north, and the urban development to the east. This is not entirely surprising. Environmental protection has long struggled to achieve parity with other economic and social issues.

There is evidence that the water management districts consider sustainability in their decision-making. Florida Statutes chapter 373.042, for example, requires the water management districts to identify priority water bodies for which minimum flow levels will be maintained.[56] Chapter 373.016, meanwhile, directs the water management districts to promote conservation and preserve natural resources, fish, and wildlife.[57] Similar to the standards for water permitting, however, these standards for environmental protection are ambiguous and allow the water management districts to loosely interpret their meanings. These ambiguities do not

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[54] Robert J. Livingston, *Importance of River Flow to the Apalachicola River-Bay System* 1, 12 (2008), *available at* http://mayorvanjohnson.com/files/Livingston_Report.pdf.

[55] SW. FLA. MGMT. DIST., *Establishment of Minimum Levels in Palustrine Cypress Wetlands*, 3 (1999), *available at* https://www.swfwmd.state.fl.us/projects/mfl/reports/ntb_white_papers-establishment_mfls_in_palustrine_cypress_wetlands.pdf.

[56] FLA. STAT. § 373.042 (2013).

[57] FLA. STAT. § 373.016 (1998).

provide water management districts with the clear statutory mandate needed to assert control during water conflicts. For example, the SWFWMD's management orders during the Tampa Bay water wars were tied up in court for years.

The water management districts face the almost impossible task of reconciling the needs of competing water consumers in a state of increasing water scarcity, while upholding the idea of environmental sustainability. Recently, the Supreme Court may have made that task even more complicated. In *Koontz v. St. Johns River Water Management District*, the Supreme Court overruled the Florida Supreme Court's decision to reject a Florida permit applicant's claim that attaching conditions to his permit (requiring the applicant to fulfill certain mitigation requirements) constituted an impermissible government taking.[58] The water management district was prepared to approve the applicant's request to fill a wetland in order to build a shopping mall, but it required that the applicant undertake certain mitigation measures, such as reducing the size of the development or supporting off-site wetlands restoration projects. Because the legal claims were based on negotiations between the district and the permit applicant, it is likely that the Supreme Court's decision will dissuade water management districts in Florida from negotiating with permit applicants at all; ultimately, permits may either be flatly accepted or rejected. The result deals a significant blow to the ability of the water management districts to create dynamic and responsive management systems.[59]

Currently, Florida's water management districts struggle to protect the state's ecosystems. Agricultural runoff poisons aquatic habitats,[60] excessive groundwater withdrawals are lowering surface water levels,[61] and

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[58] Koontz v. St. Johns River Water Mgmt. Dist., 133 S. Ct. 2586, 2590 (2013); *see also, e.g.*, THOMPSON, *supra* note 13, at 389-98.

[59] John D. Echeverria, Op-Ed., *A Legal Blow to Sustainable Development*, N.Y. TIMES (June 26, 2013), http://www.nytimes.com/2013/06/27/opinion/a-legal-blow-to-sustainable-development.html.

[60] Darryl Fears, *Report: Polluted Farm Runoff Linked to Toxic Green Algae Slime in U.S. Waters*, WASH. POST (Sept. 26, 2013), http://www.washingtonpost.com/national/health-science/report-polluted-farm-runoff-linked-to-toxic-green-algae-slime-in-us-waters/2013/09/26/591a75a2-25f1-11e3-b75d-5b7f66349852_story.html.

[61] Lauren Ritchie, Commentary, *St. Johns Foolishly Approves More Water Withdrawals from Niagara Bottling*, ORLANDO SENTINEL ((Feb. 13, 2014), http://articles.orlandosentinel.com/2014-02-

meaningful climate change adaptation has been virtually non-existent.[62] The water management districts may have extensive regulatory powers and technical and financial resources, but these factors alone have not been enough to prevent water management from harming Florida's ecosystems.

VI. CONCLUSION

Considering the staggering complexity of water management in Florida, the water management districts have performed admirably in addressing the challenge. Further research might illuminate the institutional or regulatory characteristics of the districts that should be emulated by other states or countries interested in basin-level management. It is likely, for example, that when decentralized governance is not coupled with robust regulatory, financial, and human resources, water management is not likely to be effective.[63] While these characteristics may be a necessary component of successful water governance frameworks, the water management districts demonstrate that these alone are not sufficient.

First, even if water management institutions are created along hydrological boundaries, it is unlikely those boundaries encompass every dimension of water resources. For example, water management districts were drawn to reflect surface water basins; these boundaries, however, do not reflect divisions between Florida's aquifer systems. Similarly, water management districts face challenges imposed by extraterritorial water management, as demonstrated by the ACF River Basin conflict and Florida's north-south water dynamics. Transboundary conflict may even arise entirely within the water management districts, as shown by the Tampa Bay water wars.

Second, the multi-sectoral, multi-jurisdictional nature of water resources invites participation from a number of political forces. The stakes

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13/news/os-lk-niagara-bottled-water-lauren-ritchie--20140212_1_niagara-bottling-water-resources-water-district.

[62] FLA. DEP'T OF ENVTL. PROTECTION, *Climate Change/ Water.Connections* (Oct. 2010), *available at* http://www.dep.state.fl.us/water/waterpolicy/docs/factsheets/wrfss-climate-change.pdf.

[63] *See generally*, Ryan Stoa, *Subsidiary in Principle: Decentralization of Water Resources Management*, 10 UTRECHT L. REV. 31 (2014).

for water management in Florida are so high it cannot be considered an entirely local endeavor. Many federal government agencies are involved in decision-making and project financing. At the state level, water management districts receive a great deal of autonomy, but they are still overseen by political actors, the impact of which may fluctuate with the winds of the political process. Even at the local level, water management districts must address the concerns of property owners and interest groups whose interests are not always aligned with each other or the public's interest.

Finally, while the water management districts are ostensibly managing a natural resource for sustainable use, preservation of the natural environment is a nearly insurmountable task in the face of expanding urban development and agricultural production. The importance of water resources for Florida ecosystems is known to be vital, but the exact nature of ecohydrological interaction remains inexact, and therefore adds a degree of difficulty to the management framework. Additionally, water management districts are not empowered with the legal or statutory mandate to consider environmental sustainability above other interests, and as a result, Florida ecosystems continue to show signs of degradation.

The IWRM approach is innovative and holistic in many ways. Basin-level management is one aspect of IWRM that receives overwhelming support from the integrated water governance community. However, that aspect alone is not sufficient to address the overwhelming complexity of water resource management. The Florida water management districts demonstrate that while basin-level management may contribute to improved water governance, challenges persist that frustrate the ideals of sustainability and IWRM.